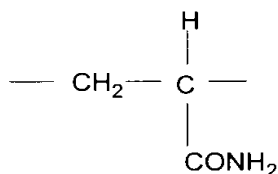


IN THE CLAIMS:

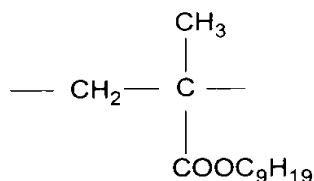
1 - 19. (canceled)

20. (new) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, the cement slurry comprising cement, at least one mineral filler consisting of silica with a grain size distribution ranges between 5 and 200  $\mu\text{m}$ , water and a determined amount of a copolymer, designated as HMPAM, having hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said copolymer having the following structure:  $\text{---(Hb)---(Hy)---}$  with a statistical distribution, wherein Hy has the following form:



and

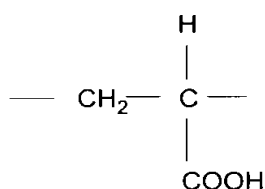
Hb has the following form:



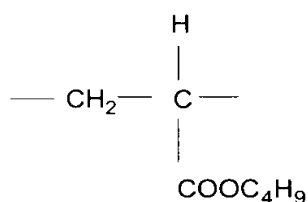
wherein said copolymer has a weight average molecular weight of between  $8 \cdot 10^6$  and  $10^7$  daltons.

21. (new) The cement slurry of Claim 20, wherein said copolymer has a proportion of hydrophobic units ranging from between 0.5 and 60%.

22. (new) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, characterized in that it comprises cement, at least one mineral filler consisting of silica with grain size ranges between 5 and 200  $\mu\text{m}$ , water and a copolymer, designated as Hb1, having hydrophilic (Hy) and hydrophobic (Hb) units in aqueous solution, said copolymer having the following structure:  $\text{---(Hb)---(Hy)---}$  with a statistical distribution, wherein Hy has the following form:



and Hb has the following form:

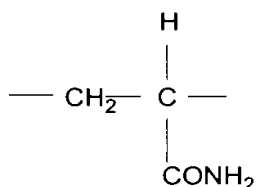


wherein said copolymer has a weight average molecular weight of between  $10^4$  and  $5 \cdot 10^4$  daltons and wherein the proportion of Hy units is about 80% and wherein said copolymer is contained in the cement slurry in a concentration ranging between 0.5 and 5% by weight and wherein the cement slurry has a water/cement ratio of 30% by weight.

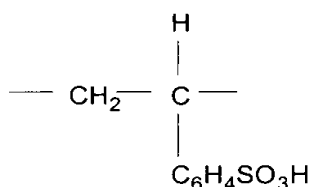
23. (new) A cement slurry intended to be set in a wellbore through at least one geologic formation having a certain permeability, characterized in that it comprises cement, at least one mineral filler consisting of silica with grain size

ranges between 5 and 200  $\mu\text{m}$ , water and a copolymer selected from the group of copolymers designated as S1 and S2 wherein

S1 is a copolymer having units of



and

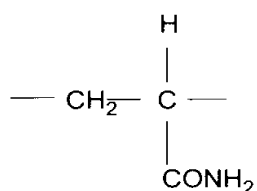


with a molar ratio of about 50/50, in aqueous solution, with a statistical distribution, wherein said copolymer has a weight average molecular weight of between  $5 \cdot 10^5$  and  $5 \cdot 10^6$  daltons, and

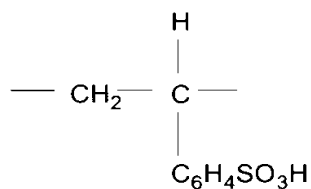
wherein S2 is a branched copolymer having the same units as S1, in aqueous solution, with a statistical distribution, wherein said copolymer has a weight average molecular weight of between  $5 \cdot 10^5$  and  $5 \cdot 10^6$  daltons and wherein the branched copolymer is formed by using N,N' methylene bis acrylamine (MBA) as a branching agent.

24. (new) The slurry of Claim 20, wherein the slurry further contains a copolymer selected from the group of copolymers designated as S1 and S2 wherein

S1 is a copolymer having units of



and



with a molar ratio of about 50/50, in aqueous solution, with a statistical distribution, wherein said copolymer has a weight average molecular weight of between  $5 \cdot 10^5$  and  $5 \cdot 10^6$  daltons, and

wherein S2 is a branched copolymer having the same units as S1, in aqueous solution, with a statistical distribution, wherein said copolymer has a weight average molecular weight of between  $5 \cdot 10^5$  and  $5 \cdot 10^6$  daltons and wherein the branched copolymer is formed by using N,N' methylene bis acrylamine (MBA) as a branching agent.